error among the other models as measurement of accuracy which involved mean absolute error (MAE), sum square error (SSE), mean square error (MSE) and mean error (ME) nearest to zero. This model gave the ME values which underlying between −0.03 to 0.91, from 0.14 to 2.70 for MAE, 5.25 to 1265.11 for SSE and 0.07 to 16.22 for MSE. Forecasting results for male and female have shown that the cases of septicaemic deaths will be increasing in next five years.

Conclusion: Forecasting can be a reference model for government to make a move in planning for the future and to perform better health strategic planning especially in patient management related to septicaemic deaths.

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64.056

The Etiology of Hospital-Related Central Vascular Catheter Infections. A Prospective Microbiological Study

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Background: A prospective microbiological surveillance program is ongoing at our tertiary-care Hospital located in Northern Italy.

Patients and Methods: The trend of microbial isolations from patients admitted during the last calendar year (January to December 2007), with a clinically- and microbiologically-confirmed central venous catheter (CVC) infection, is regularly reported on quarterly basis.

Results: The trend of CVC infections monitorized among our inpatients moderately varied during the observation period (149 cases in January-March, 169 episodes in April-June, 129 cases in July-September, and 134 episodes in October-December). Among the most frequent organisms, *Staphylococcus epidermidis* accounted for the majority of isolates (183 cases: 31.5%), followed by *Escherichia coli* (49: 8.4%), *Staphylococcus aureus* (45: 7.7%), Pseudomonas aeruginosa (36: 6.2%), *Enterococcus faecalis* (30: 5.2%), *Enterococcus faecium* (25: 4.3%), *Klebsiella pneumoniae* (21: 3.6%), and *Enterobacter cloacae* (15: 2.6%), while the yeast *Candida albicans* accounted for a minority of episodes (17 only: 2.9%). When analyzing the available figures according to calendar months, only some Gram-negative pathogens showed an increasing incidence over time: *Pseudomonas aeruginosa* from 5.4% in the first three months of 2007 up to 7.5% in the last three months of 2007, and *Enterobacter cloacae* (from 2.0% in January—March 2007, up to 2.68% in October—December 2007), as well as other environmental Gram-negative organisms

Conclusions: A prospective microbiological monitoring may notably add to the knowledge of local epidemiological figures and antimicrobial sensitivity trends of CVC infection (which represent relevant causes of hospital-related morbidity), and plays a highly significant role in the selection and planning of chemoprophylactic and therapeutic choices, on both local and regional settings. Although the the progressive emerging of Gram-negative pathogens is appreciable also over a proportionally short (12-month) observation period, and deserves major attention by Microbiologists and Clinicians.

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Prospective Monitoring of in Vitro Antimicrobial Susceptibility Testing of Major Pathogens at a Large Tertiary Care Metropolitan Hospital. A Guidance for Both Therapeutic and Prophylactic Choices

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Background: Prospective microbiological surveillance studies including a continued monitoring of antimicrobial sensitivity rates, have been performed at our Hospital since the year 2004. Materials and Methods: The temporal variations of in vitro antibiotic susceptibility rates were examined for the main hospital isolates, represented by *Staphylococcus aureus*, Enterobacteriaceae as a whole, *Pseudomonas aeruginosa*, and Enterococci. The same pathogen cultured more than once from the same patient within one month,has been considered once.

Results: Among *Staphylococcus aureus* isolates (1,869 tested strains), the rate of methicillin resistance remained elevated, but ranged from 46.2% (year 2007),to 53.3% (year 2005). Consistently elevated sensitivity rates were found for vancomycin-teicoplanin (100%), followed by cotrimoxazole (92.3%), chloramphenicol (81.7%), and rifampin (66.3%). With regard to Enterobacteriaceae as a group (4,428 tested strains), carbapenems and colistin maintained full (100%) in vitro efficacy, followed by amikacin (96.4%), piperacillin-tazobactam (85.7%),and ceftazidime (78.3%), while less than 65% of strains were sensitive to ciprofloxacin and amoxycillin-clavulanate. Among Enterobacteriaceae, *Escherichia coli* showed a significantly better sensitivity profile compared with other organisms, especially when co-amoxyclav, ceftazidime, piperacillin-tazobactam, and gentamicin were of concern. On the other hand, *Pseudomonas aeruginosa* (2,063 tested strains), was 100% sensitive to colistin, followed by imipenem (78.3%), ceftazidime (75.5%), amikacin (73.7%), and piperacillin-tazobactam (73.2%). Finally, among Enterococci as a whole (2,734 tested strains), vancomycin resistance accounted for 8.1% of cases, while linezolid proved 100% effective. Compared with *Enterococcus faecium*,*Enterococcus faecalis* tested more sensitive to penicillin, ampicillin, streptomycin, and nitrofurantoin, while it proved less susceptibile to tetracyclines.

Conclusions: A prospective bacteriological surveillance of antimicrobial susceptibility rates of major hospital-isolated microorganisms is extremely important, to establish reliable guidelines of antibiotic treatment and prophylaxis,on local-regional basis. Pending in vitro susceptibility testing of each bacterial isolate, a correct initial, empiric choice

and a prophylactic regimens, should be based on the established antimicrobial sensitivities, in order to avoid extensive emergence of resistance and cross-resistance of different compounds, and to save and preserve existing and future therapeutic options.

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64.058

Commensals of Mucous Surfaces Used to Control Nosocomial Diseases: Efficacy and Possible Acting Mechanisms

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Background: Nosocomial infections caused by multiresistant opportunistic pathogens are more frequently observed in patients with detected immune system disorders. Commensal bacteria play a crucial role in the maintenance of the host's mucosal immune responsiveness as determined by complex molecular mechanisms. Therefore, new knowledge of host/bacterial interaction is required to implement alternative methods to control nosocomial diseases.

Methods: Identification of the selected clinical isolates was performed using VITEK2 automatic system. Their genetic congeniality and correspondingly etiological role in the registered nosocomial infections were confirmed by PCR and PFGE. The antibacterial efficacy of commensal bacteria against dominative pathogens was tested *in vitro* and *in vivo*. The level of cytokines secreted by different subsets of epithelial (mice) and dendritic (human) cells were assessed by ELISA. The level of SP-D and REG III beta/gamma genes expression in lungs and colon correspondingly was detected by qRT-PCR.

Results: The following clinical isolates were referred to as the agents of nosocomial infection: MRSA, *S.warnery, S.pneumoniae, E.cloaceae, K.pneumoniae, K.oxytoca, P.morganii, Acinetobacter spp., P.aeruginosa. B.subtilis* 090 and *L.salivarius* ASF 361 demonstrated inhibitory activity against pyogenic coccus (in concentrations of 50 MIO of CFU/ml) and Gram-negative bacteria (300 MIO of CFU/ml), but not against *Acinetobacter* or *P.aeruginosa*. Schaedler's *E.coli* and *E.coli* 058 were active against *E.cloaceae, K.pneumoniae* and *K.oxytoca* (50 MIO of CFU/ml). The *B.subtilis* 090 and Shaedler's *E.coli* stimulated IL-10 production by human DC after 5- and 10-hour-long bacterial exposure up to 70 and 45pg/ml, correspondingly. *K.pneumoniae* R mutant non-virulent strain differed in stimulation of TNF-alpha, but not of IL-10 and IL-6, compared with the wild virulent strain. *L.salivarius* stimulated expression of SP-D and REG III beta/gamma genes, and Shchaedler's E.coli induced the highest level of the locally produced IFN-gamma.

Conclusion: Our results provide a new insight into the mechanisms of probiotic and/or vaccine protection of human nosocomial diseases.

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64.059

Role of Patients' Attendants in Transmission and Prevention of Nosocomial Infections in Bangladeshi Public Hospitals

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Background: Public hospitals in Bangladesh are commonly characterized by limited human resources and infrastructure as well as crowding. Other studies have suggested that most hands-on care for patients is provided by patient attendants, who are usually close family members. The aim of this study is to understand the role of patient attendants in transmission and prevention of nosocomial infections.

Methods: The study was conducted in one adult male medicine and one pediatric medicine ward at each of three public tertiary care hospitals of Bangladesh. To identify the care giving pattern and risk exposures, 7—10 hours of structured and unstructured observation was done in each ward. Eighteen indepth interviews with patients and attendants were conducted to understand attendants' knowledge about infection control and role as caregivers.

Result: Attendants provide round-the-clock care to hospitalized patients. They are responsible for keeping the patient clean, including cleaning urine, vomit, saliva, feces, and blood, which is usually done with bare hand or using cloth from their own clothes. Handwashing with soap among patient attendants is uncommon. Attendants are also responsible for feeding, bathing, and giving oral medication to the patient. Patients and attendants share food and sleep in the same hospital bed. Generally, attendants' knowledge about contagious disease and disease transmission is rooted in religious and the cultural belief models rather than medical one. In their perception disease is God's will and it spreads if someone fears it, despises the infected person or has an empty stomach.

Conclusion: Traditionally, infection control in hospitals focuses on hospital staff. In Bangladesh, family attendants provide most of the hands on care, and so are at greatest risk for infectious disease transmission. Efforts to reduce their risk will need to account for their different conception of communicable disease risk and mechanism.

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64.060

Surveillance of Nosocomial Infections at a Saudi Arabian Military Hospital for a One-Year Period

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Background: The objectives of the current study are to define how many and what kind of nosocomial infections are occurring, what are the causative microbes and what kind of drugs can be used in treatment of infection at Al-Hada Armed Forces Hospital, Taif, Saudi Arabia during the year 2007.

Methods: A prospective study was implemented for all cases admitted at Al-Hada Armed Forces Hospital during